

GRAZING MANAGEMENT TO ENCOURAGE SUB CLOVER IN DRYLAND PASTURES

Actively managing the grazing of sub clover pastures can greatly increase the legume content and the feed value of the pasture in the spring.

Lincoln University's Dryland Pastures Research Team recently completed the 'Sub 4 Spring' Sustainable Farming Fund research programme that investigated how best to manage and optimise the production of both old resident and newly introduced varieties of sub clover. Sub clover is an annual species that survives in low rainfall environments which usually experience at least 2-3 months of summer dry when pastures dry off completely.

Check hill country pastures to see if it already exists. If it does you can manage the resident population and/or sow more seed to increase the spring legume content. Sub clover buries its seed burrs each year, so managing seed set and its re-emergence are most important. This factsheet outlines recommended grazing management for sub clover.

KEY MESSAGE

The long-term aim of sub clover pasture grazing management is to have 80% ground cover of sub clover in the spring which will provide 40-50% clover content of total Dry Matter on offer. To achieve this, the sub clover plant has to re-establish in autumn and be allowed to periodically set seed in late spring/early summer.

SUB CLOVER

The winter annual legume sub clover is important in dryland pastures because it:

- grows through winter
- produces up to 90% of its dry matter in the spring
- has high feed value for lactating ewes and lambs
- fixes nitrogen and therefore improves grass palatability
- survives on summer dry sites, where white clover is unreliable or absent
- Establishes in bare ground present at the end of summer

WHEN TO SPELL

Spelling sub clover pastures is required:

- at establishment in autumn. Sub clover germination happens after at least 20mm of rainfall. Let new plants grow to at least 3-4 leaves. In a wet autumn, cattle may be needed to reduce grass competition.
- in late spring/early summer (depending on length of season) to allow sub clover to set seed – see **Table 1** on back for details.



Above: newly emerged sub clover.



Right: at 4 trifoliolate leaf stage.

GRAZING - GENERAL TIPS

It takes time to set up the sub clover rejuvenation system so it's important to manage for the forage when building the seed bank in selected paddocks.

CATTLE VERSUS SHEEP


Recommendations for grazing:

- Autumn: cattle to remove competition if it is wet and grass grows rapidly
- Late winter/early spring: ewes and lambs. Aim for high legume content for lactation
- Late spring seed set: cattle to allow runners to run
- Early summer after spelling to get maximum seeds: cattle are preferred because sheep target the runners and burrs that contain seeds
- Summer: cattle or sheep, to remove tag/standing dead matter.

Graze newly established sub clover pastures carefully in the first year and keep above 1500 kg DM/ha until spelling in mid-October for seed production.



Table 1: Grazing management to maintain and increase resident sub clover on farm scale and for introducing new sub clover cultivars into existing pastures.

When	1. Acceptable resident sub clover	2. Low or no resident sub clover	3. Drilling sub clover into existing pasture (rolling hill country)
September	<p>Paddock walk to identify sub clover populations</p> <p>More than 1 sub clover plant/patch every 2 m.</p> <p>Normal stocking rates, keep grazing above 1200 kg DM/ha.</p> <p>Aim to manage up to 20% of the sub clover pasture paddocks/blocks each year in a sub clover friendly manner to allow more reseeding than normal (steady state).</p>	<p>Paddock walk to identify sub clover populations</p> <p>Less than 1 sub clover plant/patch every 2 m.</p> <p>Plan to oversow with sub clover seed next autumn:</p> <ul style="list-style-type: none"> Investigate sub clover cultivar options (see Sub Clover Guide). Soil test – use recent results or get soils tested: check that pH is > 5.6, Olsen P is 10-18, and Sulphate-S > 8. Order sub clover seed – need 10 kg/ha. 	<p>Plan to drill selected paddock(s) with sub clover next autumn:</p>
Mid-Sep onwards	<p>Identify when sub clover flowers are obvious</p> <p>This will depend on the sub clover cultivar (check the Sub Clover Guide).</p> <p>Spelling the pasture</p> <p>Spell the selected paddock(s) by closing up for 4 to 5 weeks. Alternatively remove sheep and lightly stock with cattle to keep on top of the grass to limit the amount of grass seed produced.</p>	<p>Grazing as normal (Sep to Jan)</p> <p>If some resident sub clover is present aim to keep pasture above 1200 kg DM/ha.</p> <p>Photos: sub clover flowers are small - about 10 mm long and 3-4 mm wide. Mt Barker (on left in picture) has red-banded flowers which helps with cultivar identification in the spring. Tallarook flowers (on right in picture) have no bands.</p>	<p>Grazing as normal (Sep to Jan). Consider herbicide in Oct-Nov and before drilling late Feb to mid-Mar.</p> 
Summer grazing	<p>Grazing hard, as required depending on rainfall</p>	<p>Remove any tag (Jan/Feb)</p> <p>Chew the pasture down hard to 700 -1000 kg DM/ha. Opening up the pasture will aid resident and oversown or drilled sub clover seed germination and establishment.</p>	
Feb until significant autumn rain (over 20 mm)	<p>Remove any tag</p> <p>Keep grazing pasture down to 700 kg DM/ha. Opening up the pasture will aid sub clover seed germination and establishment.</p>		
Autumn		<p>Oversow with sub clover seed and apply fertiliser if required (mid-March). Trample seed in with sheep.</p>	<p>Drill in sub clover seed and apply fertiliser if required in February (if soil is moist) to mid-March</p>
		<p>Monitor rainfall and watch for sub clover germination: sub clover germination triggered by rainfall > 20 mm. Spell to allow sub clover establishment: allow sub clover seedlings to reach 3-4 leaf stage. Then graze preferably with cattle to control long grass.</p>	
Winter	<p>Grazing as required</p> <p>Keep pasture above 1200 kg DM/ha. If possible spell lambing paddocks to build a sub clover rich pasture which is great feed for lactating ewes.</p>	<p>Grazing lightly in the first year</p> <p>Keep pasture above 1500 kg DM/ha. Control grass so clover is not shaded. Lamb on pasture.</p>	<p>Grazing lightly in the first year</p> <p>Can lamb on the new paddock. Keep pasture above 1500 kg DM/ha and consider using lower stocking rates than normal but don't let pasture mass exceed 3000 kg DM/ha.</p>
Spring	<p>Select a new set of paddock(s) to manage for sub seed set</p> <p>This should be a routine as part of a farm plan pasture rotation.</p>	<p>Identify when sub clover flowers are obvious – usually mid-Sept onwards depending on cultivar</p> <p>Spell the paddock for at least six weeks to maximise seed set. Ideally take stock off when pasture mass is down to about 1500 kg DM/ha.</p> <p>Then graze with cattle to get on top of the tall grass and/or herbs.</p> <p>Ongoing management as previously outlined for acceptable sub clover content.</p>	

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